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Research Paper

Comparative Study on Depression and Anxiety Between Smokers and Non-Smokers

Kriti Sharma[1]*, Dr. Siddharth Soni[2]

ABSTRACT

This comparative study aimed to assess and compare the levels of depression and anxiety between smokers and non-smokers. A total of 120 participants, including 60 smokers and 60 non-smokers, were recruited for the study. The Beck Depression Inventory-II (BDI-II) and the Beck Anxiety Inventory (BAI) were utilized as assessment tools. Results revealed significant differences between smokers and non-smokers in terms of depression and anxiety levels. Smokers demonstrated higher scores for depression ($M = 26.41$, $SD = 21.69$) compared to non-smokers ($M = 11.1$, $SD = 9.86$), $t(59) = 4.98$, $p = .0001$, as well as higher scores for anxiety ($M = 26.55$, $SD = 20.62$) compared to non-smokers ($M = 9.68$, $SD = 11.19$), $t(59) = 5.57$, $p = .0001$. These findings highlight the significant impact of smoking behavior on mental health outcomes, emphasizing the importance of targeted interventions aimed at addressing depression and anxiety among smokers. Further research in this area is warranted to explore potential causal mechanisms and develop effective strategies for promoting mental well-being in both smoking and non-smoking populations.

Keywords: *Depression, Anxiety, Smokers, Non-Smokers*

Anxiety and depression are major public health issues that impact millions of people globally and place a heavy strain on both individuals and societies. Even though a great deal of research has shown many factors that contribute to the onset and severity of these mental health disorders, there is still more work to be done to determine whether smoking behaviour and symptoms of depression and anxiety are related. Smoking has drawn attention for its possible effects on mental health since it is a common and modifiable risk factor for many negative health outcomes. In order to effectively target treatments and treatment approaches aimed at addressing the intricate interplay between physical and mental health, it is imperative to comprehend the relationship between smoking behaviour and depression and anxiety. Therefore, in order to further our understanding of the complex association between smoking behaviour and mental health consequences, this study intends to assess and compare the levels of anxiety and depression between smokers and non-smokers.

[1]Student, Amity Institute of Psychology and Allied Science, Amity University Uttar Pradesh, India
[2]Assistant Professor, Amity Institute of Psychology and Allied Science, Amity University Uttar Pradesh, India
*Corresponding Author

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History of Smoking Behaviour

The act of regularly breathing and exhaling smoke created by burning materials, such as tobacco, most commonly through cigarettes, pipes, or cigars, is referred to as smoking behaviour. Its history is complex and goes back thousands of years. The first indications of smoking come from prehistoric times, when indigenous tribes used tobacco in ceremonies and rituals. However, smoking did not become popular until the 19th century because of the mass manufacturing and marketing of cigarettes. Due in large part to strong marketing campaigns and societal standards that glamorised smoking, the incidence of smoking increased dramatically over the 20th century. Smoking was still widely accepted around the world despite growing evidence that it increased the risk of heart disease and lung cancer, among other health issues. With the publication of scientific studies demonstrating the detrimental effects of smoking in the middle of the 20th century, public health initiatives including warning labels, bans on tobacco advertising, and tobacco control laws were implemented. Many nations saw a reduction in smoking rates in the following decades, but issues with nicotine addiction and the influence of the tobacco industry continue to pose problems, highlighting how difficult it is to treat smoking behaviour holistically.

Non-Smoking Behaviour

The deliberate decision or practice to refrain from consuming tobacco products and breathing in smoke from burning objects like cigarettes, cigars or pipes is known as non-smoking behaviour. People who don't smoke usually stay away from places where smoking is common and may even actively advocate for smoke-free areas. This behaviour is frequently the result of health concerns about the negative impact smoking has on one's health and awareness of the risks associated with second-hand smoke. Being a non-smoker supports public health initiatives that try to lessen the negative effects of tobacco use and promote healthier lives.

Depression

Feelings of persistent sadness, despair, and a lack of enthusiasm for once enjoyable activities are indicative of depression. It can have an impact on a person's thoughts, feelings, and day-to-day functioning, frequently resulting in severe suffering and impairment in a variety of spheres of life.

Causes and Impact of Depression

Genetic, biochemical, environmental, and psychological factors can all contribute to depression. Its development can be influenced by changes in brain chemistry, including imbalances in neurotransmitters like dopamine and serotonin, as well as a genetic susceptibility. Furthermore, depressed symptoms can be brought on by or made worse by life stresses like trauma, loss, or chronic illness, as well as interpersonal problems and social isolation.

Depression can have an enormous adverse impact on someone's life. It can impact a person's energy, mood, appetite, sleep habits, concentration, and decision-making skills. In addition to impairing relationships and productivity at work, depression frequently results in a loss of interest in once-enjoyed activities. The emotional weight may be exacerbated by thoughts of suicide or feelings of remorse or worthlessness. Depression can lead to increased mortality rates, increased chance of developing chronic illnesses, and long-term functional impairment if left untreated. But with the right care and assistance, people can effectively manage their sadness and reclaim their sense of wellbeing.

Theories and Models for Depression

The cognitive model is one of the modern theories and models of depression; it emphasises how faulty thought patterns and unfavourable beliefs contribute to depressed symptoms. The neurobiological approach looks at abnormalities in the chemistry of the brain and in neural circuits, especially when it comes to neurotransmitters like dopamine and serotonin. Psychosocial theories place a strong emphasis on how life events, interpersonal connections, and environmental stressors shape depressed feelings. Furthermore, the biopsychosocial model incorporates psychological, social, and biological elements, acknowledging the intricate interplay among genetics, brain physiology, cognitive functions, and environmental factors in the development and progression of depression. These varied viewpoints provide insights into the complex nature of depression and influence all-encompassing methods of diagnosis, care, and prevention.

Anxiety

Characterised by feelings of worry, dread, or uneasiness that are out of proportion to the perceived threat, anxiety is a prevalent mental health illness. Muscle tenseness, restlessness, impatience, and trouble concentrating are some symptoms. Anxiety disorders may necessitate medication or therapy in addition to having a substantial influence on day-to-day functioning.

Causes and Impact of Anxiety

Numerous variables can contribute to anxiety, including as a person's personality, brain chemistry, genetic susceptibility, traumatic experiences, and continuous stressors like relationship or work pressure. Substance misuse and medical disorders can also exacerbate anxiety symptoms.

Anxiety can cause severe effects, including fear, concern, and avoidance behaviours, which can negatively impact relationships, daily activities, and work performance. Physical symptoms like weariness, tense muscles, and sleep difficulties also affect wellbeing. Long-lasting anxiety can increase the likelihood of other mental health issues like depression or drug addiction. Seeking treatment is crucial for managing anxiety and improving quality of life, as social disengagement and isolation can exacerbate feelings of loneliness and hinder functioning.

Theories and Models of Anxiety

Multifactorial models that highlight the interplay between genetic susceptibilities, environmental stresses, and cognitive processes are proposed by contemporary theories of anxiety. According to the cognitive-behavioural approach, for example, those who have specific cognitive vulnerabilities may be more likely to experience anxiety disorders when under stress. Furthermore, the diathesis-stress hypothesis suggests that people who are genetically predisposed to anxiety may be more vulnerable to the condition when they experience major stressors in their lives. These theories underscore the need for comprehensive methods to assessment and therapy by highlighting the intricate interactions between biological, psychological, and environmental components in the aetiology of anxiety disorders.

Smoking and Coping

There is a complicated link between smoking and managing mental health conditions including anxiety and depression. While smoking may be a coping mechanism for some people with distressing symptoms, it frequently makes these conditions worse over time.

People who rely on nicotine to momentarily reduce their feelings of tension and anxiety may become dependent on smoking. Smoking, however, is neither a healthy nor an efficient coping mechanism. This detrimental habit is sustained by misconceptions about smoking as a stress reliever, which mislead people into thinking it relieves stress when, in fact, it exacerbates mental health symptoms and general wellbeing. Furthermore, smoking's detrimental impacts on physical health exacerbate its detrimental consequences on mental health. Therefore, in order to successfully address their symptoms and promote long-term well-being, people who are battling with mental health difficulties must look for healthy coping techniques and assistance.

Justification of the Study

Through an analysis of the prevalence of anxiety and depression in smokers and non-smokers, the study can identify possible connections between smoking and psychological health. Comprehending these associations is essential for shaping public health initiatives that target smoking cessation and mental health assistance. These discoveries may aid in the creation of focused plans aimed at enhancing the general health of those impacted by these common ailments.

REVIEW OF LITERATURE

Mykletun A., et al. (2008) looked at anxiety and depression in former smokers in comparison to those who are now smoking and those who have never smoked, as well as whether these conditions get worse with time after quitting. The HADS was used to assess participants in a population-based health survey who ranged in age from 20 to 89. Results indicated that (a) smoking was most strongly associated with comorbid anxiety depression, with anxiety following closely after, and depression very slightly associated with smoking. Participants who were younger and female exhibited stronger associations. (b) Current smokers reported higher rates of anxiety and depression than did quitters or never-smokers. With the passage of time since quitting, there was no decrease in anxiety or depression.

An extensive examination of anxiety and depression in relation to the initiation, maintenance, and quitting phases of the cigarette smoking cycle was presented by Morrel H.E.R., et al. (2006), with a focus on nicotine withdrawal. An examination of the literature reveals that there is a strong correlation between smoking cigarettes and anxiety disorders as well as clinical depression. However, this association seems to be influenced by the smoker’s age, the type of disorder they are dealing with, and their level of nicotine dependence. Additionally, research indicates a possible link between smoking and subclinical depression and anxiety.

Johannsen A., et al. (2005) examined the impact of anxiety on gingival inflammation and periodontal disease in smokers and non-smokers using a single question. Every participant underwent a clinical examination and responded to a straightforward questionnaire on their smoking habits and everyday worry. After adjusting for smoking, anxious individuals exhibited a noticeably higher gingival index than non-anxious controls. The average GI score for the worried non-smokers in good health was 1.6, whereas the non-anxious non-smokers scored 1.2.

The study conducted by Kang Y., et al. (2002) sought to ascertain if smokers have higher rates of anxiety, depression, and impulsivity than nonsmokers. The overall BIS-11, the aggregate score for several scales, Beck Depression, and two of its three subgroups (motor and indiscretion) were significant differences between male smokers and nonsmokers. Men

who smoked and those who did not differed significantly from one another, whereas women who performed better on all variations showed a substantial difference.

Zhu and Valbø (2002) investigated the connection between smoking during pregnancy and depression in women. During standard ultrasound examinations at the eighteenth week of gestation, 487 pregnant mothers were polled. According to a multiple regression study, smoking during pregnancy is significantly predicted by depression. Compared to never smokers, those who smoke currently or in the past had a considerably higher likelihood of reporting depressed symptoms. For never, former, and current smokers, the rates are 12.9%, 25.1%, and 37.5%, respectively.

METHODOLOGY

Research Objectives

1. To examine the level of depression among smokers and non-smokers.
2. To assess the level of anxiety among smokers and non-smokers.

Hypothesis

- **Ho1:** There is no difference in level of depression among smokers and non-smokers.
- **Ha1:** There is difference in level of depression among smokers and non-smokers.
- **Ho2:** There is no difference in level of anxiety among smokers and non-smokers.
- **Ha2:** There is difference in level of anxiety among smokers and non-smokers.

Research Design

Quantitative analysis was the research paradigm that was applied. The research employed purposive random sampling as the sample technique.

Variables

- **Independent Variable**: Smoking status serves as the study's independent variable, dividing participants into two groups: smokers and non-smokers. This way the study can examine the influence of smoking behaviour on mental health outcomes by analysing this variable, which affects the exposure to smoking behaviour.
- **Dependent Variables**: Typically, standardized tools such as the Beck Anxiety Inventory (BAI) for anxiety and the Beck Depression Inventory-II (BDI-II) for depression are employed to measure variables associated with depression and anxiety, like levels of depression and anxiety. These factors quantify the relevant psychological states and shed light on the frequency and intensity of anxiety and sadness in smokers and non-smokers.
- **Explanatory Variables**: The two types of explanatory factors are age and gender. Gender provides insights into potential disparities in mental health consequences related with smoking behaviour, with females making up 55% of the sample and males making up 45%. The age group of 18 to 40 years old represents a particular population that is vulnerable to mental health problems associated with smoking, and it helps to explain how depression and anxiety patterns change with age in both smokers and non-smokers.

Sampling

Purposive sampling was used in the study, in which individuals were chosen in accordance with predetermined standards. There were sixty smokers and sixty non-smokers among the 120 participants, who ranged in age from 18 to 40. With the help of purposeful sampling,

individuals who fit predefined criteria can be specifically recruited, guaranteeing representation from both the smoker and non-smoking groups within the given age range.

Instruments

- **Beck Depression Inventory (BDI-II):** The Beck Depression Inventory-II (BDI-II) is employed for evaluating depression. The set of 21 things symbolises many symptoms of depression, including but not limited to melancholy, impatience, and loss of interest. On a scale from 0 to 3, participants indicate how severe their symptoms have been throughout the last two weeks. Higher scores indicate more severe degrees of depression. The total scores are computed by adding the ratings.
- **Beck Anxiety Inventory (BAI)**: The Beck Anxiety Inventory (BAI) is used to gauge anxiety levels. Like the BDI-II, this self-report questionnaire has twenty-one items that each indicate an anxiety symptom, such as worry, fear, or uneasiness. Based on what they have experienced during the last week, participants estimate the intensity of each symptom. Scores are 0 to 3, with the sum of the scores for each individual item determining the final score. Higher scores indicate higher anxiety symptomatology. The total score represents the overall amount of anxiety.

Procedure

The process for the study started with the choice of assessment instruments, which were the Beck Anxiety Inventory (BAI) and the Beck Depression Inventory-II (BDI-II), which were selected to gauge anxiety and depression levels, respectively. Using purposive sampling, 60 smokers and 60 non-smokers among the 120 individuals, ages 18 to 40, were equally represented. Before they were involved, all participants gave their informed consent. Robust statistical analysis of the study findings was ensured by conducting an independent samples t-test to compare the mean scores of anxiety and depression between smokers and non-smokers after data collection.

Statistical Analysis

To compare the means of depression and anxiety levels between smokers and non-smokers, the researcher used an independent samples t-test. Since it enables the comparison of two independent groups' differences on a continuous outcome variable—in this case, the study's depression and anxiety scores—statistical analysis was selected.

Determining whether the observed differences in depression and anxiety levels between smokers and non-smokers are statistically significant is one advantage of utilising an independent samples t-test. The t-test offers a trustworthy way to determine if any observed differences are most likely caused by the effect of smoking status rather than random chance by comparing the means of the two groups while taking the variability within each group into account. This lends validity to the study's findings and conclusions about the relationship between smoking behaviour and outcomes related to mental health.

Ethical Standards

The study adhered to ethical guidelines by securing informed consent, guaranteeing privacy, and permitting withdrawal from the study at any time. All study participants received detailed information, their anonymity was protected, and they were free to leave the study at any time without facing consequences. During the research process, these procedures honoured the ethical concepts of autonomy, beneficence, and justice while also protecting participant rights and maintaining anonymity.

RESULTS

Table 1. Descriptive statistics that indicate the mean score of depression and anxiety among smokers and non-smokers.

DEPENDENT VARIABLES	SMOKERS			NON-SMOKERS		
	N	Mean	SD	N	Mean	SD
DEPRESSION	60	26.41	21.69	60	11.1	9.86
ANXIETY		26.55	20.62		9.68	11.19

Figure 1. Shows that depression mean is 26.41 for smokers, and 11.1 for non-smokers. Anxiety mean in smokers is 26.55 and non-smokers is 9.68.

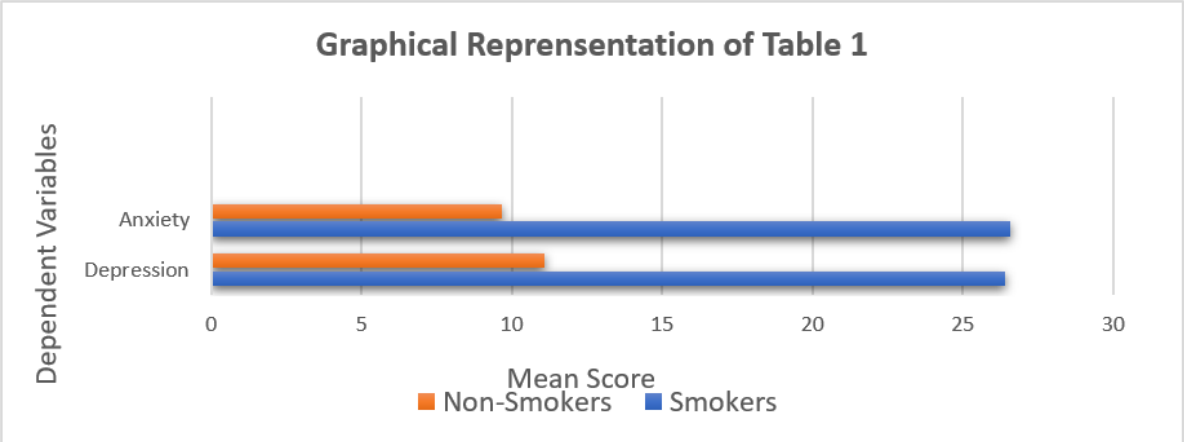

Table 2. Independent sample t-test significance. This suggests a difference at the 0.05 significance level.

VARIABLES	AMONG SMOKERS AND NON-SMOKERS		
	t value	df	P value (2 Tailed)
DEPRESSION	4.98	59	P<.0001
ANXIETY	5.57	59	P<.0001

DISCUSSION

This study compares and evaluates depression and anxiety levels in smokers and non-smokers. Anxiety and depression are complicated mental illnesses that are impacted by numerous variables. Among the main causes are genetic susceptibility, brain chemistry abnormalities, and life experiences including trauma, stress, and loss. These disorders can also arise and worsen as a result of environmental variables such as social class, access to healthcare, and social support systems. An individual's everyday functioning, interpersonal interactions, and general quality of life can all be significantly impacted by depression and anxiety. Depression can present as enduring emotions of melancholy, worthlessness, and hopelessness, while anxiety can cause excessive worry, fear, and physical symptoms like sweating and a fast heartbeat.

To reduce the prevalence of anxiety and depression in the community, targeted treatments and policies must take into account the association between smoking behaviour and mental health consequences. There is a considerable association between smoking cigarettes and anxiety disorders as well as clinical depression, as demonstrated by Morrel H.E.R., et al. (2006), who conducted an exhaustive examination of anxiety and depression in relation to the cigarette smoking cycle. Nevertheless, there are a number of variables that affect this association, including age, the kind of disease, and the degree of nicotine dependency.

Researches have demonstrated that smoking aggravates feelings of anxiety and depression, and those who smoke as a coping strategy may already be more depressed and anxious than others. This reciprocal interaction emphasises how crucial it is to comprehend how these factors interact and how they affect the results of mental health.

The study intends to provide light on the potential mechanisms behind the correlation between smoking behaviour and psychological distress by comparing the interactions between smokers and non-smokers. Gaining such knowledge is crucial to creating focused therapies that address mental health inequities and enhance general wellbeing.

Ho1: There is no difference in level of depression among smokers and non-smokers.
Ha1: There is difference in level of depression among smokers and non-smokers.

The 60 smokers participants (M = 26.41, SD = 21.69), compared to the 60 non-smoker participants (M = 11.1, SD = 9.86) demonstrated higher score for depression, $t(59) = 4.98$, $p = .0001$. The research finding showed significant levels of depression among smokers and non-smokers as 0.0001, which is lower than 0.05, thus showing that there was a significant difference in depression among smokers and non - smokers. Therefore, the alternative hypothesis was accepted.

Ho2: There is no difference in level of anxiety among smokers and non-smokers.
Ha2: There is difference in level of anxiety among smokers and non-smokers.

The 60 smokers participants (M = 26.55, SD = 20.62) compared to the 60 non-smoker participants (M = 9.68, SD = 11.19) demonstrated higher score for anxiety, $t(59) = 5.57$, $p = .0001$. The research finding showed significant levels of anxiety among smokers and non-smokers as 0.0001, which is lower than 0.05, thus showing that there was a significant difference in anxiety among smokers and non-smokers. Therefore, the alternative hypothesis was accepted.

The purpose of the study was to compare the results between smokers and non-smokers. The findings indicated that smokers and non-smokers differed significantly in terms of depression and anxiety.

Theoretical Contributions

The study provides useful information for creating focused interventions and directing legislative efforts. This research emphasises the necessity for comprehensive smoking cessation programmes that incorporate mental health care by highlighting the heightened levels of anxiety and sadness among smokers. These results can be used by legislators to support laws that provide for more access to counselling services and specialised cessation programmes, among other measures that address the mental health needs of smokers. Moreover, by applying these findings to clinical practice, healthcare professionals can offer more successful interventions to people who are battling mental health problems in addition to smoking.

Practical Contributions

The study highlights the connection between smoking behaviour and consequences related to mental health, which makes important theoretical contributions. On the basis of these results, future studies can investigate possible therapies and expand on our comprehension of the mechanisms behind this link. Furthermore, by emphasising the significance of taking

smoking behaviour into account as a factor in the onset and aggravation of depression and anxiety, this study contributes to theoretical frameworks. Comprehending these correlations helps direct the creation of more efficacious preventive and therapeutic approaches for those impacted by these psychological disorders.

CONCLUSION

In summary, there are notable differences in the degrees of depression and anxiety between smokers and non-smokers, with smokers showing higher levels of both conditions. The significance of treating mental health concerns in public health initiatives and smoking cessation programmes is highlighted by these findings. Moreover, the discovery of a plausible association between smoking and subclinical depression and anxiety underscores the necessity for additional investigation in this domain. Improved mental health and a decrease in the prevalence of mental illness among smokers can be achieved by developing more effective interventions that take into account the underlying processes and causal pathways that connect smoking behaviour to psychological suffering.

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Conflict of Interest

The author(s) declared no conflict of interest.

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